III. CLAIM AMENDMENTS

~~CLAIMS~~

1. (Currently Amended) ~~1.~~ A method of injecting an AC pilot tone into a digital signal comprising:~~,~~

setting the power of said digital signal ~~being set~~ via a digital-to-analog converter ~~(12)~~ having a reference input ~~(12a)~~ for connection to a DC reference signal ~~(14),~~ ; and

~~characterized in that it includes the step of~~ injecting said pilot tone into said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~.

2. (Currently Amended) The method of claim 1, ~~characterized in that it includes the step of~~ comprising applying to said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~ a weighted sum (K_1, K_2) of said DC reference signal ~~(14)~~ and said AC pilot tone.

3. (Currently Amended) The method of ~~either of claims 1 or 2, characterized in that,~~ claim 1, wherein said digital-to-analog converter ~~(12) having~~ has an output and ~~exhibiting~~ exhibits a transfer function between said reference input ~~(12a)~~ and said output, wherein said transfer function has a high-frequency roll-off, the method ~~includes the step of~~ including associating with said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~ a pre-emphasis network ~~(R1, R2, C1)~~ for compensating for said roll-off.

4. (Currently Amended) The method of claim 2, ~~and claim 3, characterized in that it includes the step of~~ comprising providing, interposed between said pre-emphasis network ~~(R1, R2, C1)~~ and said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~, a summation node ~~(22)~~ for generating said weighted sum.

5. (Currently Amended) The method of ~~any of the previous claims, characterized in that it includes the step of~~ claim 1, comprising providing a laser source ~~(L)~~ for generating said digital ~~data~~ signal as a stream of optical pulses, the power of said pulses being set by said digital-to-analog converter ~~(12)~~.

6. (Currently Amended) The method of claim 5, ~~characterized in that it includes the step of~~ comprising:

providing a laser driver ~~(LD)~~ having an input for setting the modulation current of said optical pulses; and ~~the step of~~

driving said setting input of the laser driver ~~(LD)~~ via the output of said digital-to-analog converter ~~(12)~~.

7. (Currently Amended) The method of claim 6, ~~characterized in that it includes the steps of~~ comprising:

sensing ~~(24)~~ the DC component and the AC component of the signal applied to said setting input, and

controlling ~~(M)~~ said digital-to-analog converter ~~(12)~~ as a function said DC and AC components to maintain a

constant modulation depth in said stream of optical pulses having superimposed said pilot tone.

8. (Currently Amended) A device for injecting an AC pilot tone into a digital signal, ~~the device including~~ comprising:

a digital-to-analog converter ~~(12)~~ wherein the power of said digital signal is set by said ~~a~~ digital-to-analog converter ~~(12),~~ said digital-to-analog converter ~~(12)~~ having a reference input ~~(12a)~~ for connection to a DC reference signal ~~(14), characterized in that it includes~~ ; and

a source ~~(16)~~ of said pilot tone, said source being arranged to inject said pilot tone into said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~.

9. (Currently Amended) The device of claim 8, ~~characterized in that it includes~~ comprising a summation node ~~(22)~~ for receiving said DC reference signal ~~(14)~~ and said AC pilot tone to generate therefrom a weighted sum (K_1, K_2) of said DC reference signal ~~(14)~~ and said ~~AC~~ pilot tone, wherein said weighted sum is applied to said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~.

10. (Currently Amended) The device of ~~either of claims 8 or 9, characterized in that:~~ claim 8, wherein said digital-to-analog converter ~~(12)~~ has an output and exhibits a transfer function between said reference input ~~(12a)~~ and said output, wherein said transfer function has a high-frequency roll-off,

and wherein associated with said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~ there is provided a pre-

emphasis network ~~(R1, R2, C1)~~ for compensating for said roll-off.

11. (Currently Amended) The device of claim 9, ~~and claim 10, characterized in that~~ wherein said summation node ~~(22)~~ for generating said weighted sum is interposed between ~~a~~ said pre-emphasis network ~~(R1, R2, C1)~~ and said reference input ~~(12a)~~ of said digital-to-analog converter ~~(12)~~ .

12. (Currently Amended) The device of ~~any of previous claims 8 to 11, characterized in that~~ claim 8, wherein the device is associated with a laser source ~~(L)~~ for generating said digital signal as a stream of optical pulses, the power of said optical pulses being set by said digital-to-analog converter ~~(12)~~.

13. (Currently Amended) The device of claim 12, ~~characterized in that it includes~~ comprising a laser driver ~~(LD)~~ having an input for setting the modulation current of said optical pulses and, wherein said setting input of the laser driver ~~(LD)~~ is set by the output of said digital-to-analog converter ~~(12)~~.

14. (Currently Amended) The device of claim 13, ~~characterized in that it includes~~ comprising:

a sensing line ~~(24)~~ for sensing the DC component and the AC component of the signal applied to said setting input~~,~~; and

a controller unit ~~(M)~~ connected with said sensing line ~~(24)~~ and configured to act on said digital-to-analog converter ~~(12)~~ via said reference input ~~(12a)~~ to maintain

a constant modulation depth in said stream of optical pulses having superimposed said pilot tone as a function of said DC and AC components sensed.